

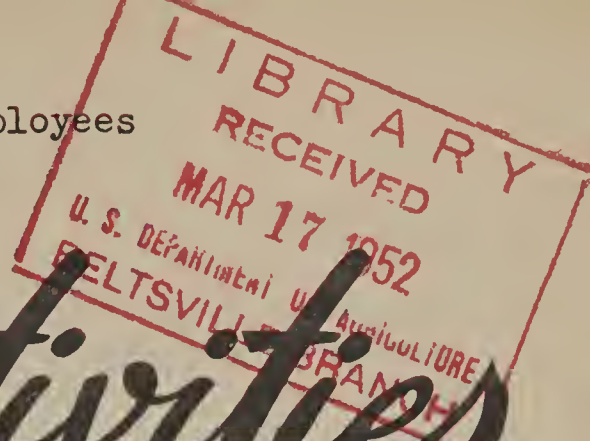
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# Research Activities

of THE BUREAU OF PLANT INDUSTRY, SOILS,  
AND AGRICULTURAL ENGINEERING.

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PLANT INDUSTRY STATION, BELTSVILLE, MD.

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## Improved Alfalfa Seed

Teamwork through the National Foundation Seed Project has produced a record supply of certified seed of improved alfalfa varieties, notes C. S. Garrison (FC&D). The estimates indicate  $14\frac{1}{2}$  million pounds of Ranger,  $3\frac{1}{2}$  million pounds of Buffalo, and  $\frac{1}{2}$  million pounds of Atlantic certified seed will be available to U. S. farmers this year.

Mr. Garrison, who is executive secretary of the Project, says 35 States are now participating in it, in cooperation with the International Crop Improvement Association, the American Seed Trade Association, and USDA. The 16-man planning committee, made up of representatives of sponsoring agencies, directs production, allocates seed, supervises its distribution to commercial channels. The seed is grown by commercial seedsmen under standards set up by the ICIA.

Kenland red clover is perhaps the best illustration of how the Project is speeding up production of improved varieties, making them available to farmers within a few years. In 1949 a few thousand pounds of this superior variety was released for demonstration purposes. It is adapted to the Central and Southern States east of the Mississippi. This year more than 2 million pounds of certified Kenland clover seed will be on the market. In addition there is more than one million pounds of foundation and registered seed available for distribution to seed growers. Most of this seed was produced in Idaho, Oregon, Washington, and California. Production, says Mr. Garrison, has been at rates 30 to 40 times those for similar red clover before the Project was initiated.

Seed of other improved varieties in the project are Narragansett alfalfa, Letcher, Otten, Rahn, Van Fossen, and Emerson red clover, Tift Sudangrass, and Climax lespedeza.

### Strong Cotton

Hopi Acala, a new cotton that comes from a cross between Hopi, a strain formerly grown by Arizona Indians, and Acala, the well-known commercial variety, showed a number of superior characters in processing tests at 13 mills, says Thomas Kerr (C&OFC&D).

The mills spun test lots--10 to 25 bales--of the cotton into a wide assortment of fabrics. At seven mills where it was spun into yarn counts ranging from 7's for belting to 40's for print cloth, Hopi Acala had an average skein strength 32 percent above cottons regularly used, from 23 to 43 percent above the control. At one mill the new cotton showed a skein strength 3 percent below that of the regular run. In combed yarns where the new cotton was spun into counts from 28's to 58's, it showed skein strengths an average of 10 percent above the usual cotton mixes, from 5 to 18 percent above the control.

The tests indicate that Hopi will not be suitable for fine counts of 62's to 78's for which Egyptian long staple is used, but its high yarn strength--39 percent above that of rain grown cotton, 26 to 61 percent higher than regular mix--gives Hopi Acala unusual promise for processing at all lower yarn counts.

### To Be Printed

From R. Q. Parks (Soils) we learn that preliminary reports on fertilizer use and crop yields, assembled this past year by a work group of the National Soils and Fertilizer Committee, are being revised, and will be printed in bulletin form.

Dr. Parks says the preliminary drafts of five processed reports have been widely used by USDA officials in presenting the needs of agriculture for fertilizer and by State and Federal workers in planning research and extension programs. The industry too has shown a keen interest in the survey, which indicates levels that fertilizer can be applied productively to major crops in the United States.

### Pre-Planting Sprays

In tests this past summer W. C. Shaw, J. P. Trimble, and C. R. Swanson (WI) obtained more than 90 percent control of all weed species in soybeans and Sudan grass from pre-planting treatments with a water-soluble dinitro. The sprays were applied 30 days before planting at rates ranging from 6 to 24 pounds an acre. The treatment controlled weeds for 6 weeks after the crops were sown with little damage to the soybeans, none to the Sudan grass. A second compound--3 chloro IPC--also appears promising as a pre-planting spray for weed control in soybeans. At rates of 10 pounds an acre this herbicide gave good control of broadleaved weeds and grass with little injury to the crop. Further tests have been planned to study these herbicides for weed control in small-seeded legumes and other grasses.



## Mechanized Research

By using a power spray to apply pear blight inoculum, four scientists in Fruit and Nut Crops were able to screen a large number of pear seedlings (1,739 individual trees) for resistance to the disease much more rapidly than has ever been possible before. John C. Dunegan told the Potomac Division of APS, February 26, that the power method required only 60 minutes to spray the entire planting. The inoculum--an aqueous suspension of the blight organism and an abrasive--was applied at bloom stage and again 2 weeks later when the fruit was beginning to form and the shoots were 6 to 8 inches long. Blight symptoms showed up on 900 seedlings. The organism invaded the main branches and trunks of 324 of these. Analysis indicates a correlation between blight development with the known resistance of the parents. Seedlings from crosses in which Comice was a parent were particularly susceptible. M. C. Goldsworthy, H. H. Moon, and R. A. Wilson worked with Mr. Dunegan in the experiment.

## Hardy Dwarf

A. C. Hildreth, superintendent of the Horticultural Field Station, Cheyenne, Wyoming, recommends Dwarffrich, a new hardy dwarf cherry, for the northern and central Great Plains and says it is worthy of trial in regions adapted to standard sour cherry varieties. Dr. Hildreth selected the new variety from seedlings brought from Manitoba. Their ancestry goes back to seed imported from Russia in 1883 by J. L. Budd of Iowa State.

A true dwarf, the original bush is less than 4 feet tall after 14 growing seasons. It comes into blossom late, escapes most spring frosts, and is a regular bearer. The fruit is similar in flavor and texture to Early Richmond, but may be slightly smaller in size. Glossy green leaves that contrast vividly with the bright red fruit make Dwarffrich an attractive ornamental. A limited amount of stock is being made available to nursery-men.

## New Sweet Corn

Glenn M. Smith (CC&D) tells us that Golden Harvest sweet corn, released jointly by the Bureau and Purdue, has an outstanding character that appeals to processors of canned and frozen corn--the silks inside the husks are white. Golden Harvest, a hybrid, produces edible corn 84 to 86 days after planting in Indiana, yields--in test plantings--from 3.86 to 5.16 tons an acre, compares favorably in quality with Golden Cross Bantam and Hoosier.

## Plant Search

"A quick way to make a slice across the plant kingdom," is how Carl Erlanson (PEI) describes a project in which leaf, fruit, and bark samples are being collected from the 25,000 introduced plants in the Plant Introduction Gardens for chemical analysis as potential sources of cortisone. The tests are being run at the Eastern Research Laboratory of BAIC. Aside from those already known, no promising sources of cortisone have been found in the many widely separated groups examined from the Gardens. All elixirs from the plant material will be further analyzed for sources of hormones, alkaloids, and other compounds.

### Seed Storage

A new seed storage facility with temperature and humidity controls has been completed at the Glenn Dale Plant Introduction Garden. It is designed to hold introduced material used in breeding programs in the Northeast region and to handle some of the carry-over of the Glenn Dale collections.

### Chemo-therapy

Chlorinated water can be used to control spot disease, cause of severe losses in the commercial mushroom crop, T. T. Ayers (VC&D) and E. B. Lambert (Civilian Defense) told the Potomac Division of APS, February 27. Their results show 90 percent of the mushrooms treated with chlorinated water were free of spot disease, firmer, and seemed to have better texture. The treatment did not reduce yields.

### Green Lawn

The front lawn of Plant Industry Station is a good example of how tall fescues can be used in turf plantings, where fine texture of the grass is not important, notes Fred V. Grau (USGA Green Section). Seeded to Alta fescue in 1947, the lawn has thrived in spite of severe drought and infestations of Japanese beetle. Standard mixture for other lawn plantings at the Station now consists of 50 percent tall fescue, 20 percent Merion bluegrass, and 30 percent red fescue. Future plans call for a gradual conversion to Zoysia turf combined with improved cool-season grasses. Dr. Grau points out that the protective mat of zoysia keeps the soil moist and cool, encourages cool-season grasses.

### Promising Olives

W. E. Whitehouse (PEI) tells us that California growers and canners of olives are interested in P. I. 33225, a small pitted Sevillano strain under test at the Plant Introduction Garden for the past 35 years. The fruit is large and uniform, tough in texture, and has the highest ratio of flesh to pit of all Sevillano strains studied. It has been a consistent though not a heavy producer at Chico.

### Alert Sounded

More than 600 plant pathologists in 48 States, Puerto Rico, Alaska, and Canada are cooperating with Dr. Paul Miller and his associates in the Plant Disease Survey in an expanded program for the early detection of serious crop diseases. Leaders have been appointed in each State to review information, transmit disease specimens to the proper State or Federal pathologist for identification, and spearhead control work.

### Cleaners Patented

A public service patent on lint cotton cleaners has been granted to Victor L. Stedronsky and Charles S. Shaw. The process and machinery are designed for cleaning lint cotton from mechanically-picked or roughly-harvested cotton. Several leading machinery makers are producing cleaners based on the design, which was worked out when both men were stationed at the U. S. Cotton Ginning Laboratory at Stoneville, Miss. Mr. Shaw is still located there. Mr. Stedronsky is now at the Branch Laboratory at Mesilla Park, N. M.



## Rubber Expands

Twelve scientists--6 research and 6 technical advisers--have been added to the Point IV staff of Rubber Plant Investigations in the past few months.

Marion W. Parker, with the Bureau since 1936 and widely known for his research in photoperiodism, has transferred to RPI to head up studies in plant physiology and biochemistry. These will involve (1) determination of precursors of rubber in plants; (2) vegetative propagation of new strains; (3) study of the effects of top budding on yields and quality of rubber; (4) methods for tapping new strains of rubber developed in the breeding program. Dr. Parker holds a BA from Hampden Sydney Institute, the MS and Ph.D degrees from Maryland.

Desire M. Eny, naturalized French plant physiologist, will work with Dr. Parker. He is a graduate of the University of Algiers, holds an MS from Breguet Institute and a Ph.D from Cornell. Dr. Eny will be stationed in Puerto Rico.

Forrest G. Bell has transferred from SCS to serve as research coordinator and station advisor. Former chief of the Division of Erosion Control Practices in SCS, he is a graduate of Nebraska State Teachers, holds an MS degree from Iowa State College, Ames, Iowa.

Other additions to the research staff are: Carl N. Hittle, a graduate of Colorado A. & M. with a doctorate in genetics from Cornell, who will be located at Turrialba, Costa Rica; Jeffrey E. Shrum, Jr., agronomist trained at California State, whose headquarters will be in Guatemala; and Robert E. Dirks, who recently received an MS from Maryland, will be a Point IV agronomist in Haiti. Advisory technicians on rubber development programs are: Harry C. Haines, trained in forestry at Purdue and Duke, who will be stationed at San Jose, Costa Rica; Paul Tobler, Jr., a graduate of New York State School of Forestry, assigned to Bolivia; P. C. Conner, a graduate in forestry from North Carolina State, who will give guidance on the Mexican rubber planting program; Dwyer D. Albert, a graduate of the University of Nebraska, who will be located in the Dominican Republic; Keith L. Truettner, a graduate of Washburn with an MSF from Michigan, will be stationed at Salvador, Brazil; and Locke Craig, trained in forestry at North Carolina State, will have headquarters at Belem, Para, Brazil.

Five of the men have had previous experience in rubber production. Mr. Haines was with the Rubber Development Corporation during World War II. Dr. Eny, Mr. Tobler, Mr. Conner, and Mr. Truettner have worked with the Firestone Plantations Company in Liberia.

On a recent visit to the stations in Haiti and the Dominican Republic, R. D. Rands, Head of the Division, and William Mackinnon, plantation supervisor, found considerable progress is being made in the production of hybrid seed. The island is one location in the Western Hemisphere where leaf blight is no problem and crown budding is not required to protect the trees from the disease.





President S. P. Doolittle (VC&D)--seated at the center of the table--discusses plans for the ninth annual meeting of the Potomac Division, American Phytopathological Society, with an executive group composed of other officers and members of the program committee. They are (l. to r.) G. E. Cox (Md.), Helen Sherwin (FC&D), H. Rex Thomas (VC&D), C. A. Thomas (TM&SC), J. B. Demaree (F&NC&D retired), and H. T. Cook (HT&S). The meeting was held at Plant Industry Station, February 26-27.

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#### NOTES ON PERSONNEL

Walter H. Hodge (PEI) has been named assistant head of the Division. Formerly professor of botany at the University of Massachusetts, Dr. Hodge came to the Bureau as a plant explorer in 1951. He spent 6 months in South Africa searching for plant sources of cortisone. In his new post Dr. Hodge, who is an economic botanist, devotes half his time to studies of specialty crops, the other half to administrative work. He holds a BA from Clark, an MS from Massachusetts, a Ph.D from Harvard.

New regional coordinator for cooperative plant introduction work in the Western States is Lowell A. Mullen. His headquarters are at Pullman, Wash. Dr. Mullen comes to the Bureau from SCS. He has been associated with that agency since 1935, has served the past 2 years as management agronomist at San Fernando, Calif. He holds a BS from Butler, an MS and a Ph.D from Washington State.

Alan Beetle (PEI) left February 15 for Patagonia to explore for grasses and legumes that may be used in breeding improved forage crops for the West. Dr. Beetle is on leave from the University of Wyoming where he is associate professor of agronomy. William B. Fox, on leave as assistant professor of botany at North Carolina State, is joining Howard Gentry (PEI) in Mexico to search for plant sources of cortisone.



Tien-Chioh Tso has been with the Division of Tobacco, Medicinal, and Special Crops since January 1 under an award from the Emergency Program of Aid to Selected Chinese Students and Scholars. He holds BS and MS degrees from Nanking University, a Ph.D from Penn State. He is working with Robert N. Jeffrey on the analysis of alkaloids of tobacco.

New member of the research staff on soil management (Soils) at Stillwater, Okla., is J. Arthur Hobbs. A Canadian, he earned his BS and MS degrees at the University of Manitoba, his Ph.D at Purdue. His experience includes work with the Manitoba Soil Survey and Extension Service, teaching at the University of Manitoba and at Kansas State.

Arnold J. MacKenzie (Soils) has transferred from Plant Industry Station to the Southwestern Irrigation Field Station, Brawley, Calif., where he is working on the chemical phases of research in soil fertility and management.

Ford S. Prince, for the past 20 years professor of agronomy at the University of New Hampshire, has joined the Soil Survey Division as liaison with the land-grant colleges of the Northeast. His headquarters are at Upper Darby, Pa.

John F. Thompson, instructor in botany at Cornell since 1950, has been named an agent to do cooperative research in biochemistry at the Soils and Nutrition Laboratory, Ithaca, N. Y.

Ralph M. Lindgren (FP) in charge of research in the Gulf States since 1947, has transferred to Madison, Wisc., to undertake general supervision of research on the decays, stains and other fungus defects of wood products. Arthur F. Verrall has taken over the wood deterioration studies in the South. George H. Hepting has been placed in charge of research in tree diseases in the South. Berch W. Henry succeeds Paul V. Siggars (retired) as pathologist in charge of research on pine diseases at Saucier, Miss. Anna E. Jenkins has transferred from Mycology and Disease Survey to Forest Pathology to make taxonomic studies of shade tree diseases.

Charles Busch Landstreet reported for duty February 19 at Knoxville, Tenn. A cotton technologist, he will work with Philip Ewald (C&OFC&D) in developing miniature spinning tests to give breeders a preliminary evaluation of new strains. Mr. Landstreet, who holds a BS from Georgia Tech, comes to the Bureau from the Production and Marketing Spinning Laboratory at College Station, Texas. He was formerly with the Southern Regional Laboratory of BAIC.

H. C. Murphy, (CC&D), who succeeded T. Ray Stanton (retired) as project leader in research on oats breeding and diseases, will continue to make his headquarters at Ames, Iowa.

Warren C. Shaw (WI) spoke on "Some fundamental aspects in weed control research" at the February meeting of the Florida chapter of Sigma Xi.

## RETIREMENTS

Jenkin W. Jones (CC&D) January 31 after more than 39 years of service. In charge of the Bureau's research in rice breeding and diseases since 1931, Mr. Jones began his employment in 1912 shortly after he graduated from Utah Agricultural College. He was the first superintendent of the Cheyenne Field Station in Wyoming, later served as superintendent of a sub-station at Nephi, Utah. He was made superintendent of the Rice Field Station at Biggs, Calif., and during the next 13 years conducted the investigations on which much of California's rice industry is based. He earned an MS at the University of California in 1924. The following year he spent 6 months in the Orient collecting rice breeding material. Since World War II Mr. Jones has been asked to assist in international meetings on rice production. He represented FAO at the Rice Workers Conference in the Orient in 1947 and on the International Rice Commission in 1950. He will continue to make his home at 5 Hickory Ave., Takoma Park, Md., and to serve as a Bureau collaborator.

C. Audrey Richards (FP) February 29 after nearly 35 years of service. Dr. Richards has been in charge of the branch conducting studies in the pathology of structural timber at the Forest Products Laboratory, Madison, Wisc., since 1929. A native of Ohio, she holds the BA and MA degrees from Miami University, a Ph.D from Wisconsin. She is the author of a number of bulletins and papers on the pathology of structural timber, pulp and wood decay, and wood preservatives. She will continue to make her home at 1915 Regent Street, Madison, Wisc.

Etta L. Rieser (Horticultural Crops) January 31 after more than 40 years of service. She makes her home at 1420 Chapin St., N. W., in Washington, D. C.

Florence E. Albin (Nematology) February 23 after 36 years of service. She is making her home at Edgewater, Md.

## DEATHS

Charles E. Chambliss, 80, for many years in charge of research in botany and rice technology, died at his home in Washington February 10. Mr. Chambliss had retired in 1941 with 33 years of service.

Joseph S. Caldwell, who retired from the Bureau in 1948, died February 18. Since his retirement Dr. Caldwell had continued as a collaborator in research on the preservation of fruits and vegetables by dehydration and freezing. He had also been teaching a course in Food Technology at the University of Maryland. He was 73 years old.